

CPC**COOPERATIVE PATENT CLASSIFICATION****G21F**

PROTECTION AGAINST X-RADIATION, GAMMA RADIATION, CORPUSCULAR RADIATION OR PARTICLE BOMBARDMENT TREATING RADIOACTIVELY CONTAMINATED MATERIAL DECONTAMINATION ARRANGEMENTS THEREFOR ([radiation protection by pharmaceutical means A61K 7/40](#); in cosmonautic vehicles [B64G](#) ; combined with a reactor [G21C 11/00](#); combined with X-ray tubes [H01J 35/16](#); combined with X-ray apparatus [H05G 1/02](#))

Guide heading:**G21F 1/00****Shielding characterised by the composition of the materials**

- G21F 1/02 . Selection of uniform shielding materials
- G21F 1/023 .. {Liquids }
- G21F 1/026 .. {Semi-liquids, gels, pastes }
- G21F 1/04 .. Concretes
Other hydraulic hardening materials
- G21F 1/042 ... {Concretes combined with other materials dispersed in the carrier }
- G21F 1/045 {with organic substances }
- G21F 1/047 {with metals }
- G21F 1/06 .. Ceramics
Glasses
Refractories ([cermets G21F 1/08](#))
- G21F 1/08 .. Metals
Alloys
Cermets, i.e. sintered mixtures of ceramics and metals
- G21F 1/085 ... {Heavy metals or alloys }
- G21F 1/10 .. Organic substances
Dispersions in organic carriers
- G21F 1/103 ... {Dispersions in organic carriers }
- G21F 1/106 {metallic dispersions }
- G21F 1/12 . Laminated shielding materials
- G21F 1/125 .. {comprising metals }

G21F 3/00**Shielding characterised by its physical form, e.g. granules, or shape of the material**

- G21F 3/02 . Clothing ([protective garments in general A41D 13/00](#))
- G21F 3/025 .. Clothing completely surrounding the wearer
- G21F 3/03 .. Aprons
- G21F 3/035 .. Gloves ([mounting means on glove boxes G21F 7/053](#))

- G21F 3/04
 - . Bricks
 - Shields made up therefrom

- G21F 5/00** **Transportable or portable shielded containers**

- G21F 5/002
 - . Containers for fluid radioactive wastes

- G21F 5/005
 - . Containers for solid radioactive wastes, e.g. for ultimate disposal
- G21F 5/008
 - .. Containers for fuel elements
- G21F 5/012
 - ... Fuel element racks in the containers

- G21F 5/015
 - . for storing radioactive sources, e.g. source carriers for irradiation units
 - Radioisotope containers
- G21F 5/018
 - .. Syringe shields or holders (syringe shielding for applying radioactive material to the body {[A61M 5/1785](#) })

- G21F 5/02
 - . with provision for restricted exposure of a radiation source within the container
- G21F 5/04
 - .. Means for controlling exposure, e.g. time, size of aperture (controlling exposure to X-radiation [H05G 1/30](#))

- G21F 5/06
 - . Details of, or accessories to, the containers
- G21F 5/065
 - .. {Containers provided with a rotatable drum }
- G21F 5/08
 - .. Shock-absorbers, e.g. impact buffers for containers
- G21F 5/10
 - .. Heat-removal systems, e.g. using circulating fluid or cooling fins
- G21F 5/12
 - .. Closures for containers
 - Sealing arrangements
- G21F 5/14
 - .. Devices for handling containers or shipping-casks, e.g. transporting devices {loading and unloading, filling of containers (Cranes, load-engaging elements or devices for cranes, capstans, winches or tackles [B66C](#)) }

- G21F 7/00** **Shielded cells or rooms (chambers provided with manipulating devices in general [B25J](#))**

- G21F 7/005
 - . Shielded passages through walls
 - Locks
 - Transferring devices between rooms (between glove-boxes [G21F 7/047](#))
- G21F 7/01
 - .. Transferring by fluidic means

- G21F 7/015
 - . Room atmosphere, temperature or pressure control devices

- G21F 7/02
 - . Observation devices permitting vision but shielding the observer { (optical systems per se [G02](#)) }
- G21F 7/03
 - .. Windows, e.g. shielded

- G21F 7/04
 - . Shielded glove-boxes (glove-boxes in general [B25J 21/02](#))
- G21F 7/041
 - .. {Glove-box atmosphere, temperature or pressure control devices (in general [G21F 7/015](#)) }
- G21F 7/043
 - .. {Lighting }

- G21F 7/045 .. {Transportable glove-boxes }
- G21F 7/047 .. Shielded passages
Closing or transferring means between glove-boxes
- G21F 7/053 .. Glove mounting means
- G21F 7/06 . Structural combination with remotely controlled apparatus, e.g. with manipulators
(manipulators [B25J](#) ; remote control in general [G05](#))
- G21F 7/061 .. {Integrated manipulators }
- G21F 7/062 ... {mounted in a wall, e.g. pivotably mounted (in general [F16J 15/50](#), [F16J 15/52](#)) }
- G21F 7/063 .. {Remotely manipulated measuring or controlling devices (combined with window [G21F 7/02](#)) }
- G21F 7/065 .. {Remotely manipulated machinery }
- G21F 7/066 .. {Remotely manipulated tools }
- G21F 7/067 .. {Transferring devices within cells or boxes (between cells [G21F 7/005](#), [G21F 7/047](#)) }
- G21F 7/068 .. {Remotely manipulating devices for fluids }

G21F 9/00 Treating radioactively contaminated material Decontamination arrangements therefor

- G21F 9/001 . {Decontamination of contaminated objects, apparatus, clothes, food; Preventing contamination thereof }
- G21F 9/002 .. {Decontamination of the surface of objects with chemical or electrochemical processes }
- G21F 9/004 ... {of metallic surfaces }
- G21F 9/005 .. {Decontamination of the surface of objects by ablation }
- G21F 9/007 . {Recovery of isotopes from radioactive waste, e.g. fission products (separating different isotopes of the same chemical element [B01D 59/00](#)) }
- G21F 9/008 . {Apparatus specially adapted for mixing or disposing radioactively contaminated material ([G21F 9/305](#) and [G21F 9/308](#) take precedence) }
- G21F 9/02 . Treating gases
- G21F 9/04 . Treating liquids

NOTE

In this group the following term is used with the meaning indicated:

- "liquids" mean compounds being liquid under normal temperature and pressure conditions.

Molten metals and corium are classified as solids. Muds are classified as liquids as long as they are not dried

- G21F 9/06 .. Processing (separating different isotopes of the same chemical element [B01D 59/00](#))
- G21F 9/08 ... by evaporation

		by distillation
G21F 9/10	...	by flocculation
G21F 9/12	...	by absorption by adsorption by ion-exchange
G21F 9/125	....	{by solvent extraction }
G21F 9/14	...	by incineration by calcination, e.g. desiccation
G21F 9/16	...	by fixation in stable solid media {G21F 9/305 takes precedence }
G21F 9/162	....	{in an inorganic matrix, e.g. clays, zeolites }
G21F 9/165	.....	{Cement or cement-like matrix (compositional aspects C04B) }
G21F 9/167	....	{in polymeric matrix, e.g. resins, tars }
G21F 9/18	...	by biological processes
G21F 9/20	..	Disposal of liquid waste
G21F 9/22	...	by storage in a tank or other container
G21F 9/24	...	by storage in the ground by storage under water, e.g. in ocean
G21F 9/26	...	by dilution in water, e.g. in ocean, in stream
G21F 9/28	.	Treating solids
G21F 9/30	..	Processing (separating different isotopes of the same chemical element B01D 59/00)
G21F 9/301	...	{by fixation in stable solid media }
G21F 9/302	....	{in an inorganic matrix }
G21F 9/304	.....	{Cement or cement-like matrix (compositional aspects C04B) }
G21F 9/305	.....	{Glass or glass like matrix (C03B 5/005 takes precedence; compositional aspects C03C) }
G21F 9/307	....	{in polymeric matrix, e.g. resins, tars }
G21F 9/308	...	{by melting the waste (G21F 9/305, G21F 9/32 take precedence) }
G21F 9/32	...	by incineration
G21F 9/34	..	Disposal of solid waste
G21F 9/36	...	by packaging by baling

Guide heading:**G21F 2005/00 Transportable or portable shielded containers**

G21F 2005/06	.	Details of, or accessories to, the containers
G21F 2005/12	..	Closures for containers Sealing arrangements
G21F 2005/125	...	Means to monitor or detect the leak-tightness of the closure